

EXHIBIT 4



UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

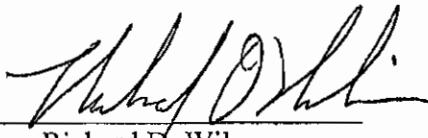
In re: Methyl Tertiary Butyl Ether (MTBE)
Products Liability Litigation

MDL No. 1358
Master File C.A. No.
1:00-1898 (SAS)

This document relates to the following case:

City of New York v. Amerada Hess Corp. et al,
Civil Action No. 04 - cv - 3417

Expert Report of


Richard D. Wilson

Date: January 16, 2009

Report of Richard D. Wilson

Introduction

This report contains my opinions regarding the circumstances under which the refining industry was required to use MTBE in gasoline in the United States. These opinions are based on my 31 years of experience with the Environmental Protection Agency and over 8 years of experience as an environmental consultant. I believe that this experience has equipped me with specialized knowledge as to the inner-workings of the federal EPA and the interaction between the EPA, the White House, and the Congress. More specifically, my opinions are based on my active participation in the process within the Executive Branch and the Legislative Branch of the Federal Government that led to these requirements. I was a senior member of the White House-led Executive Branch team that developed President Bush's Clean Air Proposal announced in June 1989. I was also a senior member of the Administration's team that negotiated with the Congress regarding the legislation that became the Clean Air Act of 1990. In addition, I directed the negotiated rulemaking process that EPA initiated and that was successful in developing implementing regulations for the new clean fuels programs. Finally, I was deeply involved in the implementation of these programs until my retirement from EPA in 1998.

In addition to my personal experience and specialized knowledge of these issues, the foundation for and further explanation of my opinions is set forth below and in the resource documents referred to in attachment 1, a table of notes I prepared regarding the critical dates and events related to the use of oxygenates in gasoline. My work experience and education are summarized in attachment 2. Attachment 3 contains a list of my trial testimony and publications during the last 10 years. I have been engaged to testify in these cases by a group of the defendants, who have agreed to compensate me for my time at the rate of \$350 per hour, to be paid to my firm, National Environmental Strategies, on a monthly retainer basis (\$7,000 per month) through the date of completion of my trial testimony or the settlement of each case, whichever occurs first.

My opinions are:

1. the requirement to use oxygenates in reformulated gasoline was imposed on the refining industry over their strenuous objection:
 - a. as a prelude to the 1990 Clean Air Amendments, President Bush proposed a cleaner motor vehicle fuels program calling for the introduction and use of cleaner burning fuels such as methanol and ethanol
 - b. the refining industry responded by arguing that the government shouldn't choose the fuels but should set environmental performance standards and allow the market place to choose between those fuels that were able to meet the environmental standards
 - c. Congress reached a political compromise between the various proposals and established a reformulated gasoline program and defined the environmental performance standards that this fuel needed to meet, as supported by the refining industry. But, in response to pressure from the ethanol industry, they also imposed a requirement for the use of oxygenate (at a 2% oxygen content level) in reformulated gasoline whether needed or not to meet the environmental standards.
 - d. The refining industry had strenuously opposed such an oxygenate requirement even mounting an advertising campaign against the so called "government gas"
2. the refining industry was, in effect, mandated to use MTBE in reformulated gasoline:
 - a. MTBE and ethanol were considered by Congress and the EPA to be the only then viable oxygenate options
 - b. while on its face the Clean Air Act of 1990 did not mandate a particular oxygenate, there was not enough supply of ethanol (the only real alternative to MTBE) available for the January 1995 start of the program
 - c. the ethanol that was available tended to be produced in the Midwest (near the source of raw materials) and difficulties of transport and handling (it couldn't be shipped in pipelines due to its affinity for water) added to the limitations on its use
 - d. the reformulated gasoline program began in January 1995, only 4 years after the Clean Air Act of 1990 was adopted and only one year after EPA signed final implementing rules in 12/1993, leaving

insufficient time to increase the supply of ethanol. The clean air benefits of the program were considered so important that prompt implementation was required

- e. during the Congressional debate and also during the EPA rulemaking process the terms of the oxygenate requirements were written to assure they could be met using MTBE since it was clear that MTBE would have to be used
- f. providing for the use of multiple oxygenates was also a key component that allowed for the expansion of the reformulated gasoline program to additional urban areas with air pollution problems while avoiding constraints on the fuel supply

3. the issues of MTBE's potential risk to groundwater and drinking water supplies were known at the time that Congress adopted the reformulated gasoline program:

- a. in 1986 an Interagency Testing Committee established under the Toxic Substances Control Act (TSCA) submitted a public report to EPA on MTBE and described its potential to contaminate groundwater. In 1987 EPA used its authority under TSCA to require industry to conduct more testing on MTBE.
- b. the problems of leaking underground storage tanks were also well known at this time and in September of 1988 EPA had issued regulations to deal with this problem

4. MTBE's potential impact on ground water or drinking water supplies did not affect the actions taken by Congress in adopting the Clean Air Act of 1990, the Administration, or of any of the parties to the negotiated rulemaking (States, industry, environmental groups, etc):

- a. while MTBE's characteristics were known, leakage of gasoline or any of its components from underground storage tanks had already been determined to be unacceptable and EPA's 1988 rules had set a deadline of December 1998 to stop such leaks
- b. none of the parties involved raised an objection to the use of MTBE based on groundwater or drinking water issues during the Congressional debate or during the negotiated rulemaking process that followed and, in my opinion, this was due to the fact that EPA was in the process of implementing a program to stop any leaks from underground gasoline storage tanks
- c. in fact, most of the participants in the process (with the obvious exception of the ethanol industry) viewed MTBE to be the oxygenate of choice due to its many favorable properties and promoted provisions in the Act and in the implementing regulations that would provide for its use

Foundation, Basis, & Explanation

During the early 1970s, all gasoline sold in the United States contained lead. However, in the mid-1970s, EPA began the phase-out of lead from conventional gasoline and began to require the sale of unleaded gasoline. Catalytic converters were introduced to allow cars to meet more stringent emissions standards, but these converters could not function with leaded fuel. Concerns regarding the health impacts of lead, especially on children and even at low exposure levels, also contributed to the phase-out of leaded gasoline. The Clean Air Act Amendments of 1990 (“CAA”) mandated the elimination of lead from all United States motor fuel by January 1, 1996. As of December 31, 1995, leaded gasoline was no longer available in the United States.

Before its removal, lead was a source of octane in gasoline. Because of the importance of octane in gasoline for vehicle performance, refiners turned to alternative sources of octane when lead was eliminated. Oxygenates, including methyl tertiary butyl ether (“MTBE”) and ethanol were among the alternative sources of octane used.

In mid-1987, rapidly approaching deadlines under the Clean Air Act were causing federal and state agencies to search for additional control strategies that offered significant environmental benefits, including alternative fuels—both replacement fuels for gasoline (*e.g.*, methanol, ethanol, and compressed natural gas) as well as gasoline-based fuels that included low levels of additives to reduce vehicle emissions. Congress typically calls upon officials from relevant Executive Branch agencies when it conducts investigations in the course of considering legislation. On June 17, 1987, I testified as a representative of EPA before the Subcommittee on Energy and Power of the Committee

on Energy and Commerce of the House of Representatives regarding the various options for achieving air emission reductions.¹

With regard to the second group (i.e., gasoline-based fuels with additives to reduce emissions), the additives that were generating the most interest at EPA in 1987 were ethanol, methanol, and MTBE.

I also authored an *EPA Journal* article on alternative fuels, which is titled *Alternative Fuels: Their Prospects for Fighting Smog*, and is dated October 1, 1987.² In part, the article states: "Four blends [of gasoline with additives] have been approved by EPA: gasohol, which contains 10 percent ethanol; DuPont, which includes 5 percent methanol and 2.5 percent ethanol; Oxinol, which contains 5 percent methanol and 5 percent tertiary butyl alcohol; and MTBE, which can be blended up to 11 percent with gasoline. . . . MTBE...would reduce carbon monoxide emissions by 12 percent."

In 1988 Denver began a program requiring that oxygenates be added to gasoline to lower carbon monoxide (CO) emissions during the winter months when ambient CO levels reach unhealthy levels. To my knowledge, there were some isolated consumer complaints but no issues of drinking water contamination. Soon thereafter, other cities including Phoenix adopted similar programs.

In June 1989, then President George H.W. Bush proposed a comprehensive program to provide cleaner air for all Americans.³ It included major revisions to the 1977 Clean Air Act. The plan had two major components related to providing cleaner burning fuels. First, a major new program was proposed to promote the use of clean-burning oxygenated fuels, which emit dramatically less carbon monoxide. This program sought to require those cities with the most serious carbon monoxide problems to use gasoline

blended with oxygenates during the winter months. MTBE and ethanol were considered by Congress and the EPA to be the only viable oxygenate options. This program was substantially revised by the Congress and came to be known as the "Winter Oxygenate Program."

The second major proposal was the use of alternative fuels (such as methanol, natural gas and ethanol) year-round in the most serious areas not attaining ambient air quality standards. Other clean burning fuels, such as reformulated gasoline, electricity, propane, and any other comparable low emission fuel were added to the program that was also substantially revised by the Congress and later became known as the "Reformulated Gasoline Program".

These proposals were introduced as legislative bills in Congress and debated during 1989 and 1990. During the debate, Arco began marketing reformulated gasoline known as EC-1 in California and it included the use of MTBE at the 1% oxygen level. Soon thereafter, other oil companies also introduced reformulated gasoline.

As the debate progressed, rigorous deadlines were proposed as to when the non-attainment areas were required to start using cleaner gasoline. Eventually, the Congress adopted a requirement of 2.7% oxygenated fuel for use in winter months beginning on November 1, 1992 for moderate and serious carbon monoxide non-attainment areas. Other, higher oxygen levels were considered but 2.7% was adopted as the final requirement in order to assure that MTBE could be used. For severe and extreme ozone non-attainment areas, the reformulated gasoline program was required to begin January 1995 and had to contain at least 2% oxygen as well as meet performance standards calling for a 15% reduction in toxic emissions and a 15% reduction in VOC emissions.

On November 15, 1990, the Amendments were signed by President Bush and enacted into law.

In November of 1992, the use of oxygenates increased substantially with the start of the 2.7% oxygenate program in 39 cities during the winter months to lower CO emissions. About two thirds of the oxygenate used was MTBE and the rest was ethanol.⁴ In January of 1995 the reformulated gasoline program began in the major urban areas of the USA. About 30% of the gasoline sold was reformulated to reduce air pollution emissions.⁵ About 84% of the reformulated gasoline used MTBE.⁶ In January of 2000, Phase 2 of the reformulated gasoline program began. The environmental requirements tightened to a 22% reduction in toxics, a 27% reduction in VOC emissions, and a 7.0% reduction in NOx emissions.⁷

Benefits of Using Oxygenates, Including MTBE, in Gasoline:

In my role as Director of EPA's Office of Mobile Sources, I came to understand and be informed with respect to the usage and air quality impact of various automotive fuels and components. Oxygenate use in the USA began as an octane replacement for lead in gasoline and so its use has played an important role in obtaining the improved health benefits of reduced lead emissions and also the many public health benefits from the use of catalytic emission controls on cars and trucks.

The winter oxygenate program that started in November 1992 was designed to reduce carbon monoxide emissions from vehicles. During the first year of implementation, the number of exceedances of the health based carbon monoxide ambient air quality standard was reduced by 70% (from 125 in 1991 to 38 in 1993).⁸ As a result of this program for cleaner fuels and programs for cleaner cars, carbon monoxide

is no longer a significant ambient air pollution problem in the USA despite the significant increase in vehicle usage each year.

The year-round reformulated gasoline program that started in January 1995 also has provided substantial environmental and public health benefits. EPA estimates that the program reduced ambient levels of benzene (a known human carcinogen) by 38%.⁹ Since the program began, EPA estimates that the program has resulted in annual reductions of VOC and NOx combined of at least 105,000 tons and at least 24,000 tons of toxic emissions reductions which is equivalent to taking 16 million cars off the road every year.¹⁰

Regulatory History re MTBE Use in Gasoline

Under the comprehensive EPA regulations put in place pursuant to the original Clean Air Act, a gasoline additive must be registered before it may be put into gasoline. In order to register a gasoline constituent, *i.e.*, provide notification that a chemical component will be used in fuel, the constituent must be substantially similar to baseline fuels. If the constituent is not substantially similar, EPA must grant a waiver before the constituent can be added. In order for a waiver to be granted, the law requires that EPA must find that the additive will neither adversely affect vehicle emissions nor damage emission control devices.

In accordance with the application review process set forth in the regulations, on February 23, 1979, EPA granted a waiver for MTBE and approved MTBE levels of 7% (or less) in gasoline. In 1981, EPA approved MTBE blends up to 11% in unleaded gasoline. On August 28, 1988, EPA granted an additional waiver for MTBE and approved MTBE levels of 15% (or less) in gasoline.

From 1979 forward, EPA was aware of the increasing use of MTBE in motor vehicle fuels in accordance with the waivers EPA had granted. In 1986, the agency added MTBE to the list of substances to be reviewed in order to determine risks presented to human health and the environment. On October 31, 1986, the Interagency Testing Committee established under the Toxic Substances Control Act submitted its 19th report to the EPA and recommended that the EPA review and test MTBE to determine its health and environmental risks. It characterized MTBE as having relatively high water solubility and indicated that its persistence in groundwater following spills is unknown, but that MTBE is not likely to be readily biodegradable.

During the review of MTBE by the relevant office of EPA (the Test Rules Development Branch of the Office of Pesticides and Toxic Substances), issues concerning the possible effects of MTBE on ground water were reviewed by EPA. An EPA internal memorandum dated April 6, 1987 and entitled "Division Director Briefing for Methyl tert-Butyl Ether (MTBE)," states: "Concern about MTBE in drinking water surfaced after the ITC report was published. Known cases of drinking water contamination have been reported in 4 states. These cases affect individual families as well as towns of up to 20,000 people. It is possible that this problem could rapidly mushroom due to leaking underground storage tanks at service stations. The tendency for MTBE to separate from the gasoline mixture into ground water could lead to wide spread drinking water contamination."

Pursuant to the EPA TSCA program, EPA conducted a detailed review of the available MTBE testing data, requested some further testing of MTBE, and entered into a consent testing order with industry to complete additional studies on MTBE's possible effects. Although I was not personally involved in EPA's review of MTBE under the

Toxic Substances Control Act, I was generally aware at the time that a branch of EPA was conducting a review of the potential effects of MTBE on the environment and human health.

In September 1988, EPA issued regulations to clean up leaking underground storage tanks. The regulations included detailed standards that would result in the upgrading of fuel tanks and fuel tanks systems throughout the United States, beginning in 1988 and being completed in 1998. In the regulations EPA noted that the tank standards provided for compatibility with gasoline / oxygenate mixtures containing up to 15% by volume of MTBE. Although I was not personally involved in EPA's promulgation of the UST regulations enacted in 1988, I was generally aware at the time of the activity of another branch of EPA (the Office of Underground Storage Tanks).

In 1990, the United States Congress passed the Clean Air Amendments, which contained two provisions requiring the use of oxygenates in motor vehicles fuels—the oxygenated fuels program and the reformulated gasoline program. At the time that the Clean Air Act Amendments were enacted in 1990, Congress was aware that these new air pollution requirements would be met, in substantial part, by the use of MTBE as an additive to motor vehicle fuels.

In fact, throughout the Congressional debates, MTBE was consistently mentioned by all involved as the most likely oxygenate to be used for the Winter Oxygenate and Reformulated Gasoline Programs. The reason is twofold: first, given the impending deadlines, MTBE was the obvious choice due to its favorable properties such as low volatility, and the ease and readiness of its transportation; second, despite the fact that Congress established the oxygenated fuel requirement in an "oxygenate neutral" way, for many portions of the country MTBE was the only viable option for refiners given the

limited production capacity of ethanol and the fact that ethanol cannot be easily shipped long distances through pipelines because of its tendency to absorb water. In March 2000, EPA noted that no other oxygenate was being manufactured in sufficient volume to meet total current national oxygenate demands such that it could replace MTBE.¹¹

In March of 1991, EPA began a formal regulatory negotiation over the details of implementing the just passed clean gasoline components of the 1990 Clean Air Act Amendments. The regulatory negotiation process supplements the notice-and-comment procedure for promulgating a federal regulation. In my position at EPA, I directed the so-called "reg-neg" process for the clean fuels provision of the CAAA, which involved comprehensive public discussions among and between representatives of all the involved interests (including oil, oxygenate, auto, states, environmental and public health groups, etc.) On August 16, 1991 EPA announced that an agreement had been reached with all these parties on the implementation of these clean fuel programs. During these discussions, no objection was raised to the use of MTBE due to possible water contamination issues even though MTBE was expected to be the predominant oxygenate used (and most viewed it as the preferred oxygenate) and even though the possible water contamination issue was widely known as a result of the EPA TSCA program activities. In their May 31, 1993 comments on EPA's supplemental proposal regarding reformulated gasoline, the Northeast States for Coordinated Air Use Management ("NESCAUM") opposed providing "preferential treatment" for ethanol as a fuel oxygenate and discussed several concerns regarding ethanol use. They raised no concerns regarding MTBE use.

During the implementation of the Winter Oxygenate (beginning November 1992) and Reformulated Gasoline Programs (beginning in January of 1995), various issues arose concerning the health effects of MTBE, its containment in underground storage tanks, and its potential to contaminate drinking water. The Office of Mobile Sources was

consistently in contact with other divisions within the EPA, specifically those responsible for drinking water and UST programs, to evaluate whether MTBE should be removed from gasoline. At the time I was Director of the Office of Mobile Sources.

It was the EPA's official position that MTBE had been tremendously successful in providing healthier air for cities across the country. The EPA was aware of and concerned about reports of gasoline constituents leaking from USTs.¹² However, we at EPA believed that leaks of gasoline from underground storage tanks were unacceptable and that the agency's response should be to concentrate its efforts on improving UST compliance programs and helping states and cities with remediation efforts. Therefore, the EPA's official view (see, for example, the next paragraph) was that there was no reason to curtail the Reformulated Gasoline or Wintertime Oxygenate Programs, which had been remarkably successful in improving air quality in America's cities, or to cut back on the use of oxygenates, including MTBE.

EPA issued an Issue Paper dated March 8, 1996 in response to articles concerning MTBE. In part, the Issue Paper states: "Some reports indicate that MTBE is showing up in ground water and drinking water in various locations. It is not clear whether such contamination is due to point sources (e.g., leaks from underground storage tanks) or whether atmospheric deposition (e.g., from automobile emissions) might contribute to such contamination. If some of the contamination is due to atmospheric deposition, it is unlikely to be responsible for MTBE groundwater levels in the hundreds or thousands of ug/L. If the contamination is due primarily or solely to leaking underground storage tank leaks, EPA's ongoing efforts under the Leaking Underground Storage Tank (LUST) program are expected to reduce groundwater contamination from fuels whether they contain MTBE or not.... EPA supports the continuation of the use of oxygenates, such as MTBE, in fuels under such programs as the reformulated gasoline program. EPA

believes that there are significant air quality and public health benefits as the result of the use of oxygenated fuels. Based on very limited data voluntarily submitted to EPA, the low levels of MTBE detected in some public water systems have not been cause for great concern."

On April 22, 1998, I testified as the EPA Acting Assistant Administrator for Air and Radiation before the Subcommittee on Health and Environment, Committee on Commerce, U.S. House of Representatives. In substance, I testified that: *The EPA was concerned about drinking water contamination in California by MTBE. For the most part, detections in ground water and surface water have been quite low (below 20 micrograms per liter). MTBE detections at higher concentrations have been a result primarily of leaking underground fuel storage tanks. These leaks are unacceptable and the EPA's underground storage tank program is expected to cause a substantial reduction in future fuel leaks from underground fuel storage tanks. EPA strongly supports the reformulated gasoline program and we believe that oxygenates provide a valuable tool to refiners in meeting the emissions reduction requirements.* This testimony was cleared not only within the EPA but also within all involved parts of the Federal Government and therefore represented the collective judgment of the Federal Government.

EPA's assumption that tank clean up programs would substantially reduce the risk that gasoline or any of its components like MTBE would get out of tanks and harm the environment or public water supplies has been supported by the California experience. The California Department of Health Services has been reporting detections of MTBE in drinking water around the state since 1995. During that time the state has also found many problems with its program to stop leaks from underground storage tanks and has

been rigorously upgrading that program. Their success is shown in the detection data. As of January 7, 2003 some 11,009 sources of drinking water have been sampled and only 0.6% had any detection of MTBE (above the detection limit) and only 0.2% had MTBE levels above the California primary (health protective) standard.¹³ The number of detections has decreased by 75% from the peak in 1998, apparently as a result of their rigorous tank program upgrades.

On March 20, 2000 EPA issued an Advanced Notice of Proposed Rulemaking under the Toxic Substances Control Act requesting comments on a phase down or phase out of MTBE use in gasoline. To date (nearly 7 years later), EPA has not taken any action to regulate such use of MTBE and MTBE continues to be registered with EPA as an acceptable gasoline additive.

¹ Public Hearing, U.S. House of Representatives, Committee on Energy and Power, Wednesday, June 17, 1987

² "Alternative Fuels: Their Prospects for Fighting Smog", EPA Journal, October 1987, pp 18-19

³ "Fact Sheet: President Bush's Clean Air Plan", Office of the Press Secretary, The White House, June 12, 1989

⁴ EPA Office of Mobile Sources Technical Overview, April 1995, EPA420-F-95-002

⁵ Letter from Richard D. Wilson, Acting Assistant Administrator, EPA to Senator Dianne Feinstein, November 14, 1997

⁶ Letter from Richard D. Wilson, Acting Assistant Administrator, EPA to Senator Dianne Feinstein, November 14, 1997

⁷ Letter from Richard D. Wilson, Acting Assistant Administrator, EPA to Senator Dianne Feinstein, November 14, 1997

⁸ Interagency Assessment of Oxygenated Fuels, National Science and Technology Council, June 1997. pg 1-37

⁹ Testimony of Richard D. Wilson before the Committee on Commerce, U.S. House of Representatives, Washington, D.C., April 22, 1998

¹⁰ Reformulated Gasoline Transition Fact Sheet, EPA, EPA420-F-02-001, February 2002

¹¹ Control of MTBE in Gasoline, EPA, EPA420-F-00-010, March 2000

¹² Environmental News, U.S. EPA Region 8, EPA Statement on USGS findings of MTBE in groundwater, March 1995

¹³ California Department of Health Services web site, MTBE in California Drinking Water, update as of January 7, 2003